



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,296	09/24/2001	Kenji Maruyama	011267	4754

38834 7590 04/20/2004

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP  
1250 CONNECTICUT AVENUE, NW  
SUITE 700  
WASHINGTON, DC 20036

EXAMINER

SCHILLINGER, LAURA M

ART UNIT	PAPER NUMBER
----------	--------------

2813

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/960,296	MARUYAMA ET AL.	
	Examiner	Art Unit	
	Laura M Schillinger	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 7-19 is/are pending in the application.
- 4a) Of the above claim(s) 17-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukushima et al ('301).

In reference to claim 1, Fukushima teaches a device comprising:

A first electrode (Fig.24 (242));

A ferroelectric film containing Ti (Fig.24 (243));

A second electrode of a metal film formed above the ferroelectric film, at least one of the first electrode and the second electrode being an electrode of a base metal (Fig.24 (244));

An intermediate layer of perovskite crystal formed at the boundary between the first electrode, the ferroelectric film and the second electrode (Abs., lines: 1-5), materials of the intermediate layer being different from materials of the first electrode, second electrode (Col.4, lines: 35-40). and the ferroelectric film, the intermediate layer containing Ti (Col.7, lines: 15-25).

In reference to claim 2, Fukushima teaches wherein the perovskite is : BaTiO<sub>3</sub> (Col.28, lines: 13-16).

Art Unit: 2813

In reference to claim 3, Fukushima teaches wherein the intermediate layer further comprises: Sr  
(Col.28, lines: 13-16)

In reference to claim 7, Fukushima teaches wherein the metal is Ni (Col.17, lines: 35-45).

In reference to claim 8, Fukushima teaches wherein the metal is Ni (Col.17, lines: 35-45).

In reference to claim 9, Fukushima teaches wherein the metal is Ni (Col.17, lines: 35-45).

In reference to claim 10, Fukushima teaches wherein the ferroelectric material is Pb based  
(Col.2, lines: 5-10).

In reference to claim 11, Fukushima teaches wherein the ferroelectric material is PZT (Col.2,  
lines: 5-10).

In reference to claim 12, Fukushima teaches wherein the PZT film further contains Ca (Col.3,  
lines: 50-65 see also Col.19, lines: 30-35).

In reference to claim 13, Fukushima teaches wherein the ferroelectric material is BST ( Col.19,  
lines: 15-20).

In reference to claim 14, Fukushima teaches wherein the ferroelectric has Bi (Col.4, lines: 1-10, 3A-7A consists of Bi).

In reference to claim 15, Fukushima teaches wherein the ferroelectric has SrBiTaO (Col.4, lines: 1-30).

In reference to claim 16, Fukushima teaches a device comprising:

A first electrode (Fig.24 (242));

A ferroelectric film (Fig.24 (243));

A second electrode (Fig.24 (244));

A transistor (Fig.22B (234 and 242);

An intermediate layer of perovskite crystal formed at the boundary between the first electrode, the ferroelectric film and the second electrode (Abs., lines: 1-5) materials of the intermediate layer being different from materials of the first electrode, second electrode and the ferroelectric film (Col.4, lines: 35-40).

### ***Response to Arguments***

Applicant's arguments filed 12/24/03 have been fully considered but they are not persuasive. The arguments state that Fukushima fails to anticipate Applicant's amended claim language because of the particular manner which Ti atoms bond to a B-site perovskite crystal structure, however this argument is not persuasive because the claim language recites only that

Art Unit: 2813

the intermediate layer contain Ti. Fukushima describes that the perovskite material contains Ti on Col.7, lines: 15-25, therefore the language of the claim is anticipated.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LMS

4/15/04